

InfoGenerator


Your source of information – trustworthy, beneficial and handy

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Dear friends, the Scientific Library of BNTU is pleased to welcome you back in 2020!

The Library continues to provide necessary information about available resources for teachers, students and university staff, as well as all interested users. Last year InfoGenerator digest has proved to be a handy and useful tool for readers' advisory, curriculum and research support. It is prepared by library professionals and includes book reviews, open access resources  and latest university news.

The first issue of this year contains additional resources in English on such topics as technology of engineering materials, cutting theory, metal cutting machines and tools, theory of automated design, technological processes optimization methods, quality management in mechanical engineering and others.

Scientific Library of BNTU wishes you successful and productive work and study!

Webometrics ranks BNTU as Belarus' fastest-rising university

The Webometrics global university rankings analysis has revealed the biggest climber among Belarusian higher learning institutions, BelTA learned from the press service of the Education Ministry.

Webometrics has had their first update in six months. "The Top 5 of Belarusian universities has remained unchanged, but Belarusian National Technical University (BNTU) has displayed the biggest quality growth, with its rankings improving by 179 points," remarked the press service.

[More](#)

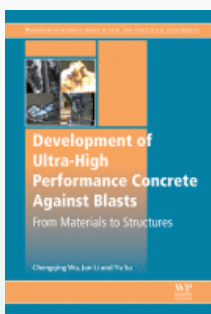


Technology of Engineering Materials



Advanced High Strength Natural Fibre Composites in Construction / ed. : M. Fan, F. Fu. - Woodhead Publishing, 2017. – 596 p. – Doi : <https://doi.org/10.1016/C2014-0-03942-1>

Advanced High Strength Natural Fibre Composites in Construction provides the basic framework and knowledge required for the efficient and sustainable use of natural fiber composites as a structural and building material, along with information on the ongoing efforts to improve the efficiency of use and competitiveness of these composites.



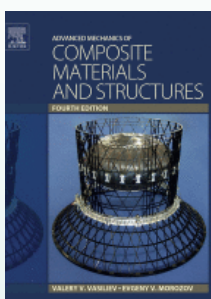
Wu, C. Development of Ultra-High Performance Concrete Against Blasts : From Materials to Structures : A volume in Woodhead Publishing Series in Civil and Structural Engineering / C. Wu, J. Li, Y. Su. - Woodhead Publishing, 2018. – 422 p. – Doi : <https://doi.org/10.1016/C2017-0-01252-1>

Development of Ultra-High Performance Concrete against Blasts: From Materials to Structures presents a detailed overview of UHPC development and its related applications in an era of rising terrorism around the world. Chapters present case studies on the novel development of the new generation of UHPC with nano additives.



Sapuan, S. M. Composite Materials : Concurrent Engineering Approach / S. M. Sapuan. — Butterworth-Heinemann, 2017. — 338 p.

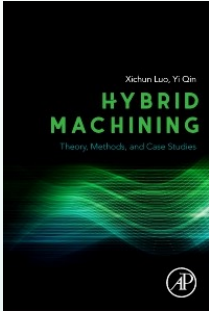
Composite Materials: Concurrent Engineering Approach covers different aspects of concurrent engineering approaches in the development of composite products. It is an equally valuable reference for teachers, students, and industry sectors, including information and knowledge on concurrent engineering for composites that are gathered together in one comprehensive resource.



Vasiliev, V. V. Advanced Mechanics of Composite Materials and Structures / V. V. Vasiliev, E. V. Morozov. — 4th ed. — Elsevier, 2018. — 882 p. — Doi : <https://doi.org/10.1016/C2016-0-04497-2>

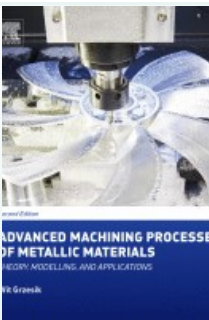
Advanced Mechanics of Composite Materials and Structures analyzes contemporary theoretical models at the micro- and macro levels of material structure. Its coverage of practical methods and approaches, experimental results, and optimization of composite material properties and structural component performance can be put to practical use by researchers and engineers.

Cutting Theory, Metal Cutting Machines and Tools



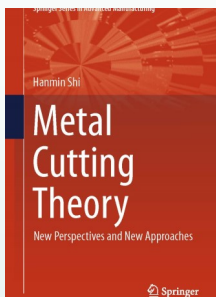
Luo, X. Hybrid Machining : Theory, Methods, and Case Studies / X. Luo, Y. Qin. - Academic Press, 2018. – 326 p. – Doi : <https://doi.org/10.1016/C2016-0-04527-8>

Hybrid Machining: Theory, Methods, and Case Studies covers the scientific fundamentals, techniques, applications and real-world descriptions of emerging hybrid machining technology. This field is advancing rapidly in industrial and academic contexts, creating a great need for the fundamental and technical guidance that this book provides. The book includes discussions of basic concepts, process design principles, standard hybrid machining processes, multi-scale modeling approaches, design, on-machine metrology and work handling systems.



Grzesik, W. Advanced Machining Processes of Metallic Materials : Theory, Modelling, and Applications / W. Grzesik. - 2nd ed. – Elsevier, 2017. – 608 p.

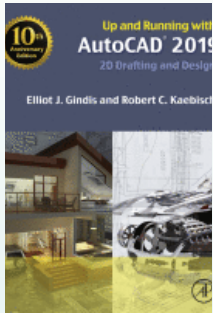
Advanced Machining Processes of Metallic Materials: Theory, Modelling and Applications, Second Edition, explores the metal cutting processes with regard to theory and industrial practice. Structured into three parts, the first section provides information on the fundamentals of machining, while the second and third parts include an overview of the effects of the theoretical and experimental considerations in high-level machining technology and a summary of production outputs related to part quality.



Hanmin, Sh. Metal Cutting Theory : New Perspectives and New Approaches / Sh. Hanmin. — Springer International Publishing, 2018. — 393 p.

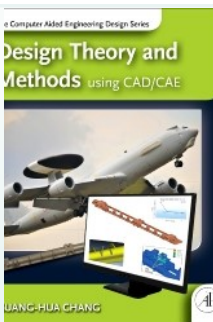
This book brings together achievements in metal cutting theory research and its application. It includes three parts: “Non-Euclidean Cutting Tool Geometry”, “Non-Free Cutting Mechanics”, and “Non-Linear Machine Tool Dynamics”. Compared with the traditional “Euclidean Cutting Tool Geometry”, “Free Cutting Mechanics”, and “Linear Machine Tool Dynamics” established by previous researchers, the above three “Non-s” may be regarded as a kind of innovation. Tried to make some new attempts in the field of metal cutting theory and its application so as to adapt the rapid development of metal cutting technology.

Theory of Automated Design



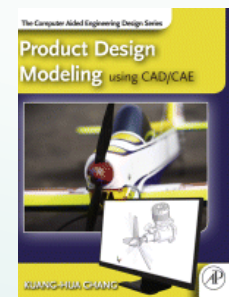
Gindis, E. J. Up and Running with AutoCAD 2019 : 2D Drafting and Design / E. J. Gindis, R. C. Kaebisch. - Academic Press, 2018. – 614 p. – Doi : <https://doi.org/10.1016/C2018-0-00039-0>

Up and Running with AutoCAD 2019: 2D Drafting and Design focuses on 2D drafting and design, making it more appropriate for a one-semester course. The book provides step-by-step instruction, examples and insightful explanations. From the beginning, the book emphasizes core concepts and the practical application of AutoCAD in engineering, architecture and design. Equally useful in instructor-led classroom training, self-study, or as a professional reference, the book is written with the user in mind by a long-time AutoCAD professional and instructor based on what works in the industry and the classroom.



Chang, K.-H. Design Theory and Methods using CAD/CAE : The Computer Aided Engineering Design Series / K.-H. Chang. — Elsevier, 2014. — 498 p.

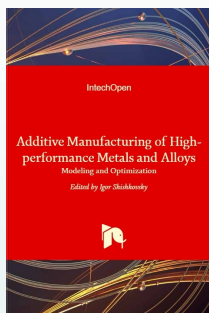
The book is the fourth (last) module of the Computer Aided Engineering Design series. The objective of the Design Theory and Methods book is to provide readers with fundamental understanding in product design theory and methods, and apply the theory and methods to support engineering design applications in the context of e-Design.



Chang, K.-H. Product Design Modeling using CAD/CAE : The Computer Aided Engineering Design Series / K.-H. Chang. — Academic Press, 2014. — 438 p. — Doi : <https://doi.org/10.1016/C2012-0-00834-4>

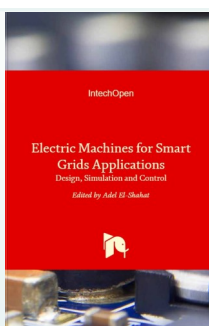
Product Design Modeling using CAD/CAE is the third part of a four-part series. It is the first book to integrate discussion of computer design tools throughout the design process.

Technological Processes Optimization Methods



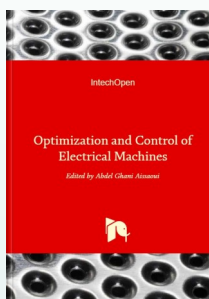
Additive Manufacturing of High-performance Metals and Alloys : Modeling and Optimization / ed. : I. Shishkovsky. — InTech, 2018. — Doi : <https://doi.org/10.5772/intechopen.69421>

Modern and high-demand powder bed fusion and directed energy deposition methods allow obtaining functional complex shapes and functionally graded structures. Until now, the experimental parametric analysis remains as the main method during AM optimization. Therefore, an additional goal of this book is to introduce readers to new modeling and material's optimization approaches in the rapidly changing world of additive manufacturing of high-performance metals and alloys.



Electric Machines for Smart Grids Applications : Design, Simulation and Control / ed. : A. El-Shahat. — InTech, 2018. — Doi : <https://doi.org/10.5772/intechopen.74089>

In this book, highly qualified scientists present their recent research motivated by the importance of electric machines.

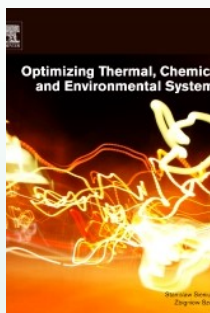


Optimization and Control of Electrical Machines / ed. : A. G. Aissaoui. — InTech, 2018. — Doi : <https://doi.org/10.5772/intechopen.71523>

Electrical machines are the subject of advanced research. In the development of an electrical machine, the design of its different structures is very important. This design ensures the robustness, energy efficiency, optimal cost and high reliability of the system. Using advanced techniques of control and new technology products has brought electrical machines into their optimal functioning mode. Different techniques of control can be applied depending on the goals considered. The aim of this book is to present recent work on the design, control and applications of electrical machines.

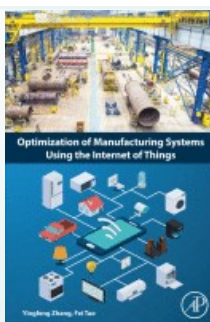


Technological Processes Optimization Methods



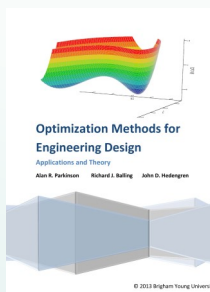
Sieniutycz, S. Optimizing Thermal, Chemical, and Environmental Systems / S. Sieniutycz, Z. Szwast. – Elsevier, 2018. – 452 p. – Doi : <https://doi.org/10.1016/C2016-0-03931-1>

Optimizing Thermal, Chemical and Environmental Systems treats the evaluation of power or energy limits for processes that arise in various thermal, chemical and environmental engineering systems (heat and mass exchangers, power converters, recovery units, solar collectors, mixture separators, chemical reactors, catalyst regenerators, etc.). The book is an indispensable source for researchers and students, providing the necessary information on what has been achieved to date in the field of process optimization, new research problems, and what kind of further studies should be developed with-in quite specialized optimizations.



Zhang, Y. Optimization of Manufacturing Systems Using the Internet of Things / Y. Zhang, F. Tao. - Academic Press, 2017. – 226 p.

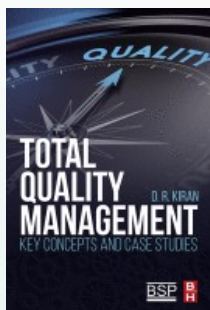
Optimization of Manufacturing Systems Using the Internet of Things extends the IoT (Internet of Things) into the manufacturing field to develop an IoMT (Internet of Manufacturing Things) architecture with real-time traceability, visibility, and interoperability in production planning, execution, and control. This book is essential reading for anyone interested in the optimization and control of an intelligent manufacturing system.



Parkinson, A. R. Optimization Methods for Engineering Design : Applications and Theory / A. R. Parkinson, R. J. Balling, J. D. Hedengren. — Brigham Young University, 2013. — 208 p.

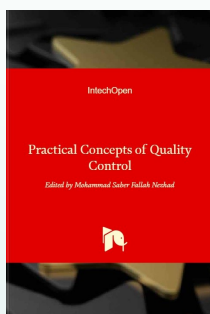


Quality Management in Mechanical Engineering



Kiran, D. R. Total Quality Management : Key Concepts and Case Studies / D. R. Kiran. — Butterworth-Heinemann, 2017. — 580 p. — Doi : <https://doi.org/10.1016/C2016-0-00426-6>

Aspects of quality control that are widely utilized in practice are combined with those that are commonly referred to on University courses, and the latest developments in quality concepts are also presented. This book is an ideal quick reference for any manager, designer, engineer, or researcher interested in quality.



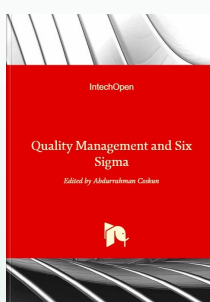
Practical Concepts of Quality Control / ed. : M. S. Fallah Nezhad. — InTech, 2012. — Doi : <https://doi.org/10.5772/3374>

This book aims to provide a concise account of the essential elements of quality control. It is designed to be used as a text for courses on quality control for students of industrial engineering at the advanced undergraduate, or as a reference for researchers in related fields seeking a concise treatment of the key concepts of quality control. It is intended to give a contemporary account of procedures used to design quality models.



Wide Spectra of Quality Control / ed. : I. Akyar. — InTech, 2011. — Doi : <https://doi.org/10.5772/1142>

The quality which is supposed to be achieved is not a concept which can be controlled by easy, numerical or other means, but it is the control over the intrinsic quality of a test facility and its studies. The aim of this book is to share useful and practical knowledge about quality control in several fields with the people who want to improve their knowledge.

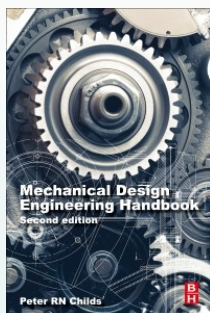


Quality Management and Six Sigma / ed. : A. Coskun. — InTech, 2010. — Doi : <https://doi.org/10.5772/271>

This book provides the necessary guidance for selecting, performing and evaluating various procedures of Quality Management and particularly Six Sigma. In the book you will see how to use data, i.e. plot, interpret and validate it for Six Sigma projects in business, industry and even in medical laboratories.

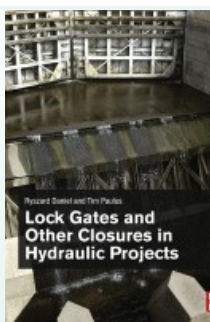


Hydraulic and Pneumatic Actuator, Hydraulic and Pneumatic Automation



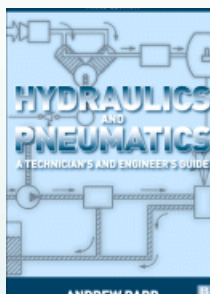
Childs, P. R. N. Mechanical Design Engineering Handbook / P. R. N. Childs. – 2nd ed. - Butterworth-Heinemann, 2019. – 982 p. – Doi : <https://doi.org/10.1016/C2016-0-05252-X>

Straight-talking and forward-thinking reference covering the design, specification, selection, use and integration of the machine elements that are fundamental to a wide range of engineering applications. Sections cover bearings, shafts, gears, seals, belts and chains, clutches and brakes, springs, fasteners, pneumatics and hydraulics, amongst other core mechanical elements. This practical handbook is an ideal shelf reference for those working in mechanical design across a variety of industries.



Daniel, R. Lock Gates and Other Closures in Hydraulic Projects / R. Daniel, T. Paulus. - Butterworth-Heinemann, 2019. – 993 p. – Doi : <https://doi.org/10.1016/C2015-0-05399-0>

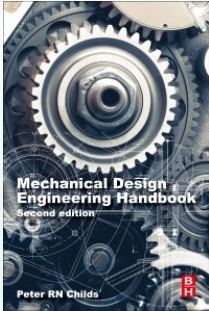
Lock Gates and Other Closures in Hydraulic Projects shares the authors practical experience in design, engineering, management and other relevant aspects with regard to hydraulic gate projects. This valuable reference on the design, construction, operation and maintenance of navigation lock gates, movable closures of weirs, flood barriers, and gates for harbor and shipyard docks provides systematic coverage on all structural types of hydraulic gates, the selection of gate types, and their advantages and disadvantages.



Parr, A. Hydraulics and Pneumatics : A Technician's and Engineer's Guide / A. Parr. - Butterworth-Heinemann, 2011. – 248 p. – Doi : <https://doi.org/10.1016/C2009-0-64113-1>

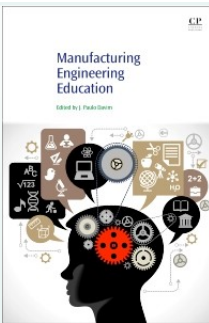
Hydraulics and Pneumatics: A Technician's and Engineer's Guide serves as a guide to the hydraulic and pneumatic systems operations. It features mathematical content that has been presented in a style understandable even to beginners and non-experts. It has nine chapters that cover both hydraulic and pneumatic machinery, their fundamental principles including safety standards and regulations. The book also features abundant referencing, updated web links, and masterful tables for easier understanding of the concepts covered.

Engineering: Miscellaneous



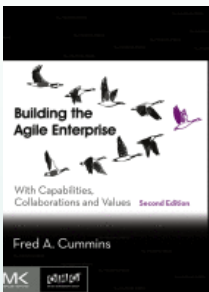
Childs, P. R. N. Mechanical Design Engineering Handbook / P. R. N. Childs. – 2nd ed. - Butterworth-Heinemann, 2019. – 982 p. – Doi : <https://doi.org/10.1016/C2016-0-05252-X>

Straight-talking and forward-thinking reference covering the design, specification, selection, use and integration of the machine elements that are fundamental to a wide range of engineering applications. Sections cover bearings, shafts, gears, seals, belts and chains, clutches and brakes, springs, fasteners, pneumatics and hydraulics, amongst other core mechanical elements. This practical handbook is an ideal shelf reference for those working in mechanical design across a variety of industries.



Manufacturing Engineering Education / ed. : J. P. Davim. - Chandos Publishing, 2019. – 169 p. – Doi : <https://doi.org/10.1016/C2015-0-06703-X>

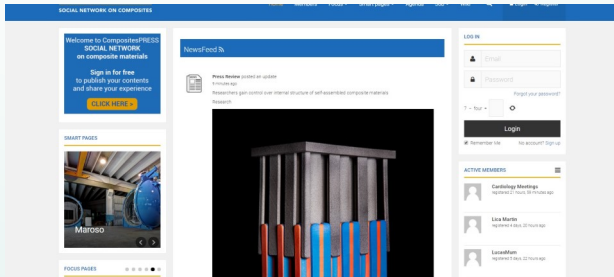
Manufacturing Engineering Education includes original and unpublished chapters that develop the applications of the manufacturing engineering education field. Chapters convey innovative research ideas that have a prodigious significance in the life of academics, engineers, researchers and professionals involved with manufacturing engineering. Today, the interest in this subject is shown in many prominent global institutes and universities, and the robust momentum of manufacturing has helped the U.S. economy continue to grow throughout 2014. This book covers manufacturing engineering education, with a special emphasis on curriculum development, and didactic aspects.



Cummins, F. A. Building the Agile Enterprise : With Capabilities, Collaborations and Values : A volume in The MK/OMG Press / F. A. Cummins. — 2nd ed. — Morgan Kaufmann, 2017. — 430 p. — Doi : <https://doi.org/10.1016/C2015-0-00928-5>

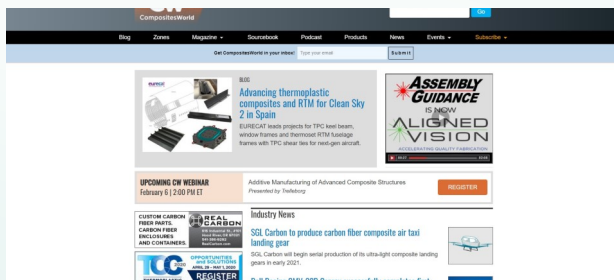
Second Edition covers advances that make technology more powerful and pervasive while, at the same time, improving alignment of technology with business. Using numerous examples, illustrations, and case studies, Fred Cummins, an industry expert, author and former fellow with EDS and Hewlett Packard, updates his first edition.

Technology of Engineering Materials. Cutting Theory, Metal Cutting Machines and Tools



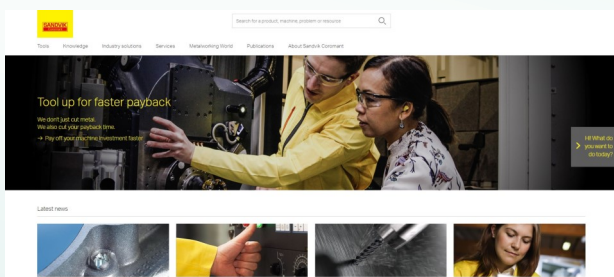
CompositesPress

CompositesPress is a social magazine where all the players from the composite materials sector (from raw materials producers to end users, from industry experts to researchers) can meet, get updates and share their experiences. The best way to get involved is registering: sign in as user or company and you'll be able to read all updates, publish your contents and interact with the rest of the community by sharing and commenting on publications.



CompositesWorld

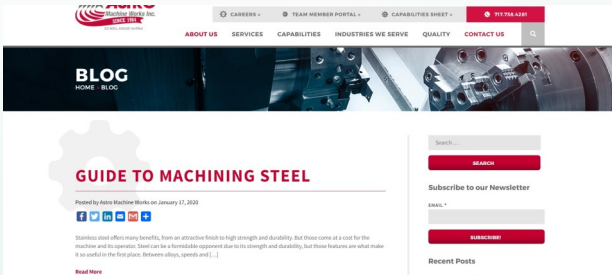
CompositesWorld is the source for reliable news and information on what's happening in fiber-reinforced composites manufacturing.



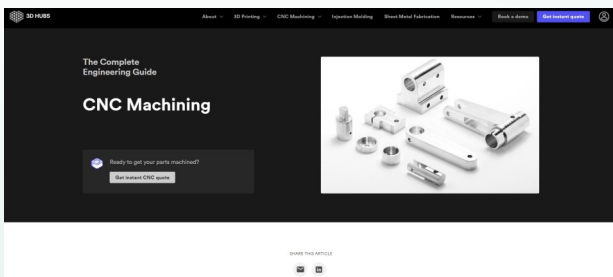
Sandvik Coromant. Metal cutting knowledge

Do you need help with calculating starting values, figure out what causes and solves poor tool life or do you need tips on how to optimize your machining processes? When you need an expert's advice for metal cutting, this is the place to go. Here you find our extensive process and application know-how, connecting the dots between real-life machining challenges and the tools and solutions we provide.

Design of Technological Equipment and Machining Attachments



Astro Machine Works



3D HUBS

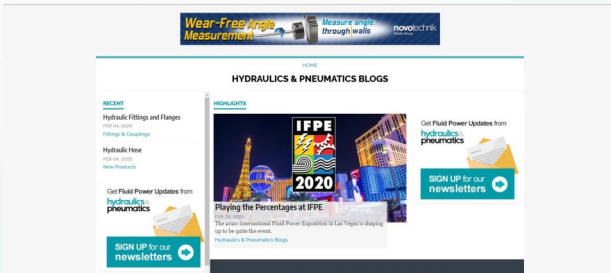
The Complete Engineering Guide CNC Machining.



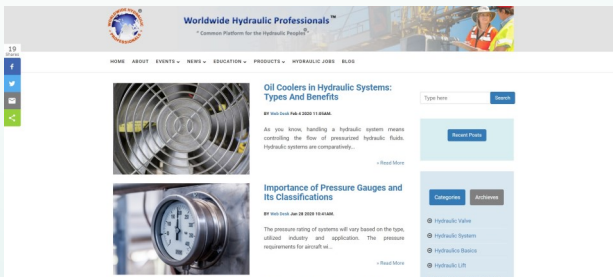
Power Zone Equipment

Fluid Handling and Equipment Information Education, and Resources for Student, Equipment Operators, and Engineers.

Design of Technological Equipment and Machining Attachments

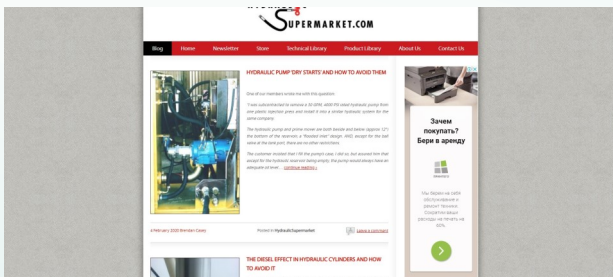


HYDRAULICS & PNEUMATICS BLOGS



WHYPS

WHYPS is a professional website specializing in hydraulic news including products, events, education, careers and fluid power industry.



Brendan Casey's Hydraulics Blog

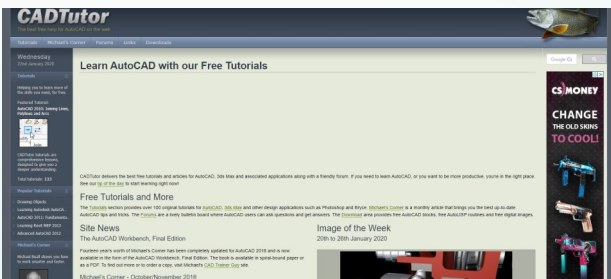
The source for how-to and money-saving information on hydraulics and pneumatic.

Engineering: Miscellaneous



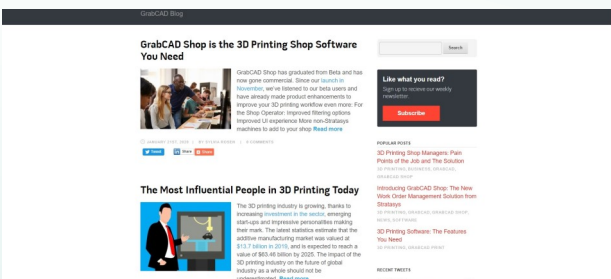
myCADsite

Learn AutoCAD - Free Tutorials.



CADTutor

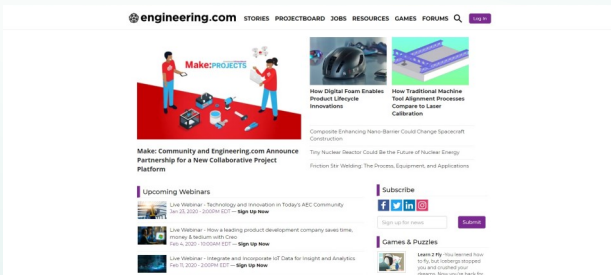
CADTutor delivers the best free tutorials and articles for AutoCAD, 3ds Max and associated applications along with a friendly forum. If you need to learn AutoCAD, or you want to be more productive, you're in the right place.



Blog GrabCAD

Blog GrabCAD makes life easier for product designers, engineers, students, and manufacturing professionals. Since 2010, millions of engineers have made their Community their own by sharing CAD files and design tips, participating in design challenges, or downloading free CAD models to avoid starting from scratch. They also host two free apps: Workbench and Print.

Engineering: Miscellaneous



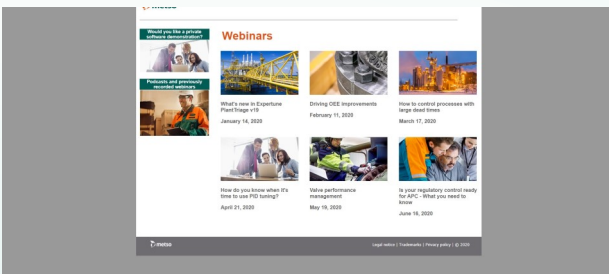
engineering.com

Engineering.com was founded on the simple mission to help engineers be better. Whether it's keeping up to speed on the latest innovations and solutions, looking for resources to learn and advance skills, or finding like-minds to help solve problems... Engineering.com is the global community for engineering minds who make a difference.



MachineDesign

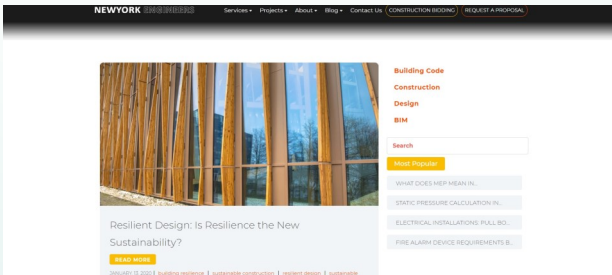
Machine Design is the comprehensive technical resource for mechanical engineers providing the technical essentials of advanced design and manufacturing. It provides in-depth, precise technical information on the full spectrum of products, markets and technologies important to this broad audience.



Metso

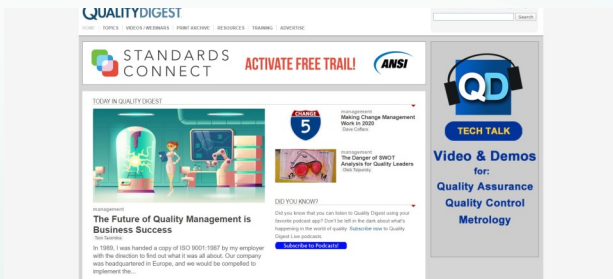
Webinars.

Engineering: Miscellaneous



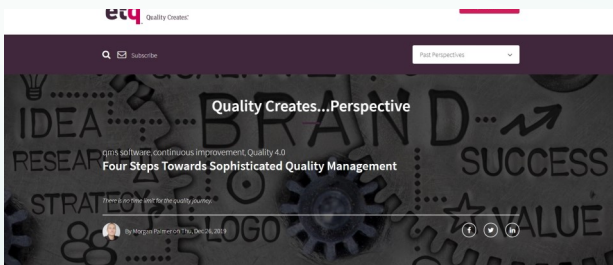
New York Engineers

Blog The New York Engineers' MEP Engineering blog provides best information and tips on MEP design, Energy saving, building codes, and new trends in the industry. Cut your construction engineering costs while simultaneously maximizing energy with our strategically efficient and functional MEP engineering designs.



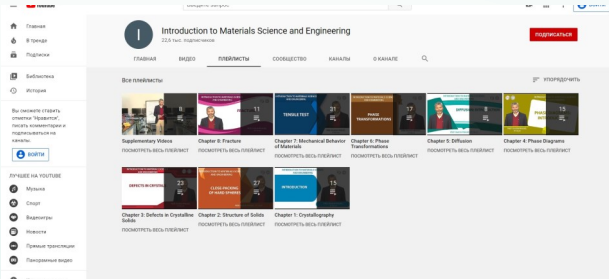
Quality Digest

Millennium 360 company, shares expert commentary and relevant industry resources in quality management, international standards, metrology, manufacturing, statistics, healthcare, services, and sustainability.

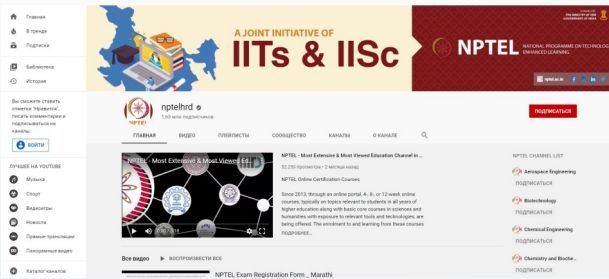


ETQ

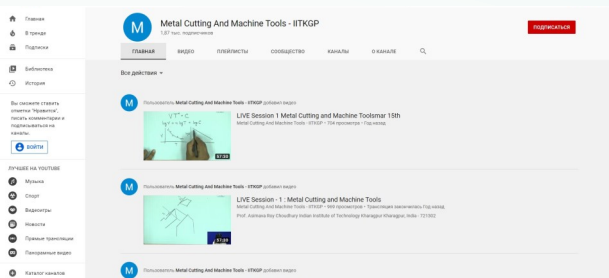
Video Resources



Introduction to Materials Science and Engineering



npTELhrd [National Programme on Technology Enhanced Learning]



Metal Cutting And Machine Tools – IITKGP



CAD/CAM Tutorials

News

BNTU funding. About a business that is willing to invest in education

Belarusian universities are interested in investments (primarily in the material and technical base), private business - in qualified specialists. According to businessmen and universities, mutual cooperation will work for both. But, unfortunately, things are not progressing as smoothly as we would like. Let's see what the problem is and how to solve it.

[More](#)



BNTU experts developed a method for biomechanical testing of the skis physicomechanical parameters

In October 2018, the President of the Republic of Belarus A.G. Lukashenko initiated a project to produce domestic plastic skis "Telekhani". Experts from Belarusian National Technical University were engaged in the development of experimental ski models.

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